

An Overview of Alcoholism Research

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ALCOHOLISM as a field of study is both fascinating and frustrating. Certainly it is little understood. Because alcoholism presents a challenge of tremendous complexity, its ultimate control will depend on the skills of diverse scientific disciplines. This paper reviews several of the contributions of various fields and indicates the nature of crucial research problems which will have to be solved if our understanding is to be increased. The intimate relation between alcoholism and the entire range of mental health problems is stressed throughout. Alcoholism research cannot be dissociated from other concerns about the mental health of our population.

The impetus for this research stems primarily from the fact that alcoholism has been defined as a social problem by the dominant cultural values of contemporary society in the United States. When a behavior pattern is defined as problematical, institutional resources are mobilized to deal with it. The resources, in turn, are guided by cultural values. A brief review of the dominant cultural values as they affect the definition of alcoholism will provide a useful point of departure for a consideration of current research efforts and needs.

Alcoholism as a social problem has undergone an interesting, although not unique, evolution. Not too long ago it was defined as a moral, religious, and ethical problem, especially within the middle class. The alcoholic was ridiculed, scorned, and held up as an example

of the danger of straying from the pronounced standard of conduct. The evil was thought to exist within the man; his only escape was through redemption. Simultaneously, however, another cultural value was prevalent. Each man was a free and independent agent who could exercise his "inherent" rights, including the right to drink, as long as he did not injure other persons or property. The opening of the western part of the continent, the general expansiveness of the 19th century, and the individualistic nature of Protestantism, all contributed to the furtherance of individual independence. That these two cultural values would clash was inevitable. There resulted a redefinition of the problem in legal terms.

Alcoholism from the legal standpoint was treated like other antisocial behavior problems. There was a demand for a law with teeth in it so that the problem could be effectively stamped out. The alcoholic was considered a weak-willed individual who was subjected to a force over which he had little, if any, control. He had to be protected by eliminating the source of the evil, the liquor industry. The evil was now outside the individual; his escape was removal of temptation. This legal solution to the problem failed, and with the repeal of the Eighteenth Amendment efforts at direct control at the national level were terminated. The problem was once again redefined, now as a sociomedical question.

Alcoholism has not been well defined in sociomedical terms, if indeed it has been defined at all. In general, alcoholism is considered an illness with a basis that is physiological or psychological or both. The evil is still within man. Now, however, it is no longer an evil but rather an illness. Man's escape is through

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intervention and prevention. Alcoholism becomes a legitimate field of study for the behavioral and medical sciences.

Ideally, alcoholism should be considered as neither good nor bad, but simply as an illness to be treated and hopefully cured, or at least arrested. Among professional people and the general public, however, value judgments of good and bad intrude. Lacking effective treatment techniques, the physician is confronted with an illness which entails endless frustrations and a generally poor prognosis. Alcoholism is a "bad" illness in terms of medical value judgments. For the general public, alcoholism differs from, let us say, cancer in the sense that the individual has little control over cancer's invasion, but presumably anyone can stop drinking if he really wants to. Or, an individual may catch a cold, but never will he "catch" alcoholism. Thus, even as an illness, alcoholism is not free from the controversy historically related to it.

It should not be inferred that the stages of evolution are discrete; alcoholism is considered today as a moral, legal, and sociomedical problem. The "drunk" somehow should be reformed, jailed, or cured. Apparently most professional workers accept alcoholism as a sociomedical problem; but this acceptance is not universal, as evidenced by the activities of some temperance groups and the filled "drunk tanks" in many local jails.

Defining the Problem

The picture of current alcoholism research has been deftly drawn by Dr. A. Querido, director of the Amsterdam Central Bureau of Public Health, The Netherlands, in the following analogy (1):

"We have witnessed the moral and ethical approach, the psychiatric and psychological, the economic, the sociological and the pharmacological approaches. In this way an enormous amount of knowledge has been gathered. The problem of alcoholism today may be compared to a mountain in which a great number of tunnels has been dug, each in its own direction and each bringing specific data to light concerning the nature of the rock of which the mountain is composed. Without denying the

value of these data, it must be admitted that the mountain still stands in its tremendous bulk, offering a serious impediment in our social traffic, and that as yet no way has been found to bypass it when building the highways of a healthy social life." Our concern is with exploring some of these tunnels. Needless to say, our explorations can be neither conclusive nor exhaustive.

There are two separate facets to man's problematic use of alcohol. One is concerned with the effects of alcohol on the organism. This is the problem of the harmful effects from intensive and prolonged ingestion of the drug alcohol. The second facet deals with the motivations for drinking alcohol. Here concern is directed toward understanding the reasons for using alcohol to cope with personal-social problems.

Related to these two facets are two levels of treatment. The first treats the harm done to the physical organism; the second is directed toward understanding the psychodynamics which lead to the choice of alcohol as a coping mechanism. Obviously, adequate treatment must proceed on both levels.

A perusal of the professional literature on alcoholism reveals two major areas of interest: the etiological, devoted to determining factors in the causation of the illness, and therapy, concerned primarily with the various types of treatment.

Etiology

In etiology, there are four major orientations, each reflecting the disciplines of the investigators: physiology, psychology, psychiatry, and sociology.

Physiological

Research on the effects of alcohol on the organism has been concerned with the absorption, oxidation, and elimination of alcohol by the organism. Alcohol is absorbed almost directly into the blood, and when it reaches the brain the physiological effects become obvious. Alcohol acts as a depressant and releases the inhibitions which individuals ordinarily have.

How much alcohol must be absorbed before its effects are felt? It is estimated that an in-

dividual can consume roughly one ounce of liquor per hour without experiencing any depressant effects. As the amount of alcohol consumed increases, the organism is less able to handle it. The result is a progressive deterioration of the body's ability to function, terminating in an unconscious stupor. Greenberg (2) has summarized the physiological effects of alcohol on the body in the following way:

"Habitual, heavy drinking produces—aside from its social, economic and moral havoc—serious and permanent bodily damage, mainly through nutritional deficiencies and metabolic disturbances. There is no evidence that small or moderate amounts of alcohol are harmful. By improving blood circulation to the body surface, a little alcohol can bring comfort to elderly patients. A small amount of alcohol increases the appetite and lessens tensions and irritations. It does not greatly affect normal blood pressure, but it does prevent the pressure from rising during anxiety. Alcohol certainly does not stimulate thought, but it may relieve worry. Undoubtedly it is because of this relief from environmental stresses and emotional tensions that the moderate use of alcohol has persisted."

Recent studies have been concerned with the metabolic characteristics of alcoholics. In general, these studies follow a research design wherein a group of alcoholics is compared with a group of nonalcoholics. One such study seems to indicate that alcoholics may suffer from impaired adrenal functions (3), and in another, it was determined that alcoholics have a higher copper concentration in the blood (4). These higher copper levels, the study suggests, are not solely the result of years of excessive alcohol consumption, but they may be an important predisposing factor to the disease.

The basic question these and many other physiological studies are attempting to answer is whether or not there is a physiological predisposition toward loss of control. In other words, is there an innate organic factor operating in some individuals causing them inevitably to become addicted when they drink alcohol and thus progress to the full development of the illness? At this time no physiologically predisposing factor has been isolated.

A related and also unanswered question pertains to the addictive characteristics of alcohol.

In certain respects, for example, the presence of withdrawal symptoms, it acts like an addictive drug. Yet it varies sufficiently so that many investigators are not willing to so classify it.

Psychological

Psychological research has paralleled physiological research. The typical research design compares a group of alcoholics with a group of nonalcoholic controls. Studies in this area range from administering psychophysical tests to the use of the various projective techniques. In the area of psychophysical tests the preponderance of evidence indicates that with the ingestion of alcohol the psychophysical reactions of the individual are impaired. With two or three drinks, blood alcohol levels rise to between 0.03 and 0.05 percent. Laboratory results show that even at these relatively low levels there is degradation of performance. Certainly if a large amount of alcohol is consumed, performance markedly deteriorates.

At the other end of the psychological testing continuum, alcoholics and nonalcoholics have been given Rorschach, Thematic Apperception, and Minnesota Multiphasic Personality Inventory Tests. No clear pattern of personality differences between the two groups has emerged from these efforts. If there is a particular personality type which is predisposed toward alcoholism, experiments and procedures have not yet been devised to demonstrate its existence.

Psychiatric

Among the explanations of alcoholism proposed by analysts are self-destruction, oral fixation, and latent homosexuality. The etiology of alcoholism is felt to be centered about one of these unconscious tendencies, or possibly a combination of them. The self-destructive urges are seen as results of feeling betrayed in childhood. The individual destroys the betrayer as well as the self through drinking to the point of unconsciousness. The oral fixation etiology is based on assumed early oral frustrations. The individual has passive and dependent urges and desires to use the mouth for oral gratification. Alcohol is chosen because of its ability to provide inner warmth, tranquility, and, ultimately, unconsciousness. As far as

homosexuality is concerned, alcoholism is viewed as a substitute for overt homosexuality.

Simmel (5), taking a somewhat different approach, differentiates among four classes of chronic drinkers: the social drinker, the reactive drinker, the neurotic drinker, and the alcohol addict. In the first two groups, social and reactive, alcohol is used as a defense against the impact of external circumstances. In the last two groups, neurotic and addict, alcohol is used to defend against the threat of inner, unconscious conflicts. Alcoholic euphoria is characterized as degenitalized sexuality, a major psychic economy for the neurotic. It has been described as a successful transformation of painful, infantile experiences into pleasurable feelings which reestablish the sensations once denied in infancy.

Sociological

The sociological approach to the study of alcoholism has not been especially concerned with etiology. Rather, emphasis has been placed on the gathering of descriptive data related to the problem. The population of alcoholics could be described in sociological terms as being older, unmarried men exhibiting a very high degree of occupational mobility. There are, of course, other types of individuals who are alcoholics, and not all individuals who possess these characteristics are alcoholics. However, this description represents the largest proportion of alcoholics. Some sociological studies (6,7) have been concerned with the drinking patterns in high schools and colleges; others (8) with motivational factors in drinking, that is, with the question, why do people drink? Still other studies have been concerned with the significance and importance of ethnic and religious affiliations. As is well known, the Irish have an unusually high alcoholism rate, while the Jews have an unusually low rate. Yet in both groups exposure to alcohol drinking is a recognized part of the socialization process. In spite of several rather intensive analyses of these variant patterns, no definitive statement can yet be made which explains the observed differences. Consideration has been given to the meaning which alcohol has within each group; pressures conducive to drinking to the

point of intoxication within the Irish group have been noted. Likewise, those pressures within the Jewish group which tend to prevent intoxication have been pointed out.

Therapy

There are three major therapeutic activities involved in the effort to arrest alcoholism. These are pharmacological, psychotherapeutic, and Alcoholics Anonymous.

Pharmacological

Pharmacological therapy may include the use of different types of drugs, for example, Antabuse or an emetic such as emetine hydrochloride. The general effectiveness of the various drugs is highly uncertain. Yet it appears that each is useful for some individuals. An interesting experiment designed to test the efficacy of four different types of therapy is reported by Wallerstein (9). The four therapeutic techniques were Antabuse, conditioned reflex, group hypnotherapy, and, finally, milieu therapy. Antabuse was used with the first group. The conditioned reflex treatment consisted of an emetic. Hypnotherapy and post-hypnotic suggestion were used with the third group. The milieu therapy participants originally were to be controls. Their participation in the experiment, however, seemed to cause them to behave differently from the typical alcoholic patient on the ward. For example, they requested 2 hours of group therapy each week, while other treatment groups had but one session weekly. The results of the study indicated that Antabuse was somewhat more effective than the other types of treatment considered.

Psychotherapeutic

Psychotherapy of various forms is for some alcoholics an effective therapeutic mechanism. The skills used in treating alcoholics do not vary from those skills used in treating other individuals. It must be admitted, however, that alcoholics frequently resist the best efforts of the therapist. The psychotherapeutic approach varies most from the other therapies in recognizing that alcoholism may be only symp-

tomatic of deeper underlying disturbances. The therapeutic effort therefore focuses on ameliorating the underlying causes of the overt excessive drinking behavior.

Alcoholics Anonymous

Certainly, Alcoholics Anonymous has enjoyed great success in assisting individuals to maintain sobriety. All the reasons for the success of its program are not known, not even by its members. Some of the factors probably related to the success of the organization are: (a) mutual understanding and acceptance, (b) supportive and reinforcement activities designed to aid another in remaining sober, (c) group identification and affiliation which provide for goals outside the self, (d) continuing rededication to the ideals and goals through regular group sessions, (e) opportunities for continual contrasts with previous states of insobriety, (f) opportunities to assist others achieve a meaningful status within the society, and (g) I would suspect at a deeper level, a subtle type of social-self reincarnation. Whatever the reasons may be, AA is generally successful. However, there are individuals who do not or cannot respond to this type of therapy. Perhaps at some future time studies will be designed to determine the selective factors which are operating in the therapeutic process.

While each of these three approaches makes a significant therapeutic effort, in actual practice, some individuals suffering from alcoholism are likely to be involved simultaneously with all of them. Other alcoholics may be exposed to only one of the approaches. The best prognosis most likely can be made when the needs of the individual are aligned with the most relevant therapeutic technique.

There is another phenomenon, spontaneous recovery, which occurs occasionally. How frequently this happens is not known. If it does occur often, the problem of evaluating any therapeutic effort becomes exceedingly difficult.

These, then, are some of the tunnels in our mountain. We have explored the tunnels, but the mountain remains. Perhaps a brief discussion of the inadequacies of the various research designs will enable us to appreciate the difficulties of attempting to determine primary

etiological factors and effective therapeutic techniques.

Research Problems

One of the traditional methods for measuring the extent of alcoholism in a given area is to use Jellinek's formula. This formula is based on an assumed relationship between the number of individuals who have died from cirrhosis of the liver and the number of individuals who are alcoholics. Until recently, rough measures of the extent of alcoholism have been predicted through use of this formula. Recently, however, workers in the field of alcoholism have been challenging its validity, having shown that the Jellinek formula probably underestimates the number (10-12). As a result of the present state of uncertainty, a statement to the effect that we just don't know how many alcoholics there are in the United States today is probably the only realistic and true statement which could be made.

A problem intimately associated with that of measurement pertains to definitions. Certainly if a phenomenon is to be measured, it must necessarily be defined, and it must be defined precisely enough to enable the mensuration process to occur. One of the generally accepted definitions of alcoholism can be used to demonstrate the difficulties. According to Keller and Seeley (13), alcoholism is "a chronic disease, or disorder of behaviour, characterized by the repeated drinking of alcoholic beverages to an extent that exceeds customary dietary use or ordinary compliance with the social drinking customs of the community, and that interferes with the drinker's health, interpersonal relations or economic functioning." While this definition may serve many useful purposes, it is of limited value for research and diagnostic purposes. More questions are raised than are answered, questions such as: What is excessive repeated drinking? What are the dietary and social drinking customs? Which community? Presumably, a person who drinks more (frequency or amount?) than others in his community would fit part of the definition. However, would the bridge club member who has two cocktails before dinner while the other members

have only one be considered an alcoholic? Conversely, would the individual who "drinks his breakfast" along with his fellow inhabitants of skid row be drinking in excess of the skid row community's customary dietary and social uses?

Another part of the definition can be applied more readily. Individuals whose health has begun to deteriorate or who have lost jobs because of drinking alcohol may be suffering from alcoholism. Another facet of the definition, "interferes with interpersonal relations," is much more ambiguous. Would the man who repeatedly has a cocktail before dinner over the strenuous objections of his wife be considered an alcoholic? It would appear that this definition lacks the precision necessary for research or clinical work. In fact, the shorter statement, "He drinks too much!" may be just as helpful.

The inadequacy of this definition and others for purposes of research is at least tacitly recognized by those working in the field. Reliance is usually placed on an operational definition; that is, it is stated for purposes of a given study that an individual who must have a "morning drink" is to be considered an alcoholic, or an individual who has suffered two or three blackouts will, for purposes of this study, be considered an alcoholic. While this is a satisfactory procedure for a particular study, it does present problems when one attempts to compare several studies if alcoholism is defined in various ways.

The difficulties in defining alcoholism have their roots in the controversy discussed earlier. For example, if a man drinks "too much" he is probably an alcoholic; if he beats his wife too, he surely is! Now he is an alcoholic because he drinks and beats his wife. The latter event is the confirming evidence. The quarrel here is not with the fact that alcohol, acting as a depressant, releases inhibitions, but rather with attributing such behavior to alcoholism instead of viewing drinking as a concomitant of the breakdown of interpersonal relations.

Directly related to the problem of definitions is that of communication. Certainly if individuals are to communicate in an effective way, it is imperative that the same meanings be placed upon the symbols which are used. However, among both the professional and lay groups interested in alcoholism, the confusion emanating

from inaccurate or inappropriate definitions is manifest. A review of the professional literature reveals that in many alcoholism studies groups of alcoholics are studied. Unfortunately, however, the criteria used to designate the category "alcoholic" are seldom presented. Under these circumstances, communication among professional people is effectively blocked. Barriers to communication among lay groups have already been touched upon.

Another problem relating to both the inadequate definitions and the breakdown in communication is the relative lack of knowledge pertaining to normal or nonpathological drinking patterns. In other words, we do not have appropriate baseline data with which suspected deviation in drinking habits can be compared. It is true that there are several national polls which provide some information and, in addition, a series of studies confined to particular population groups. However, these do not provide all the information necessary. There is need for communitywide studies on why people drink. Certainly if there are deviant motivations for drinking, for example, drinking to cope with difficult problems, then knowledge of these deviant reasons or motivations for drinking would become an important element in both intervention and prevention.

In a technical sense, one of the major shortcomings of the physiological and psychological research efforts is that the alcoholic group, however this group is defined, is usually composed of individuals who are in the advanced stages of the illness. Therefore, it becomes an exceedingly difficult, if not impossible, task to separate cause from effect. Any physiological or psychological differences from the control group of normals which might be noted could as well be the result of long exposure to alcohol as they could be causative factors. To be more specific, if it is found that alcoholics have a unique personality structure, or that alcoholics metabolize alcohol differently from nonalcoholics, one could not say that either of these conditions was a predisposing factor. It is conceivable that long exposure to alcohol could cause either one. One of the most obvious research needs in the field of alcoholism is therefore a series of long-range studies. One such study has recently been reported (14).

In 1935 two groups of boys, one judged as maladjusted and the other judged as normal, were subjected to intensive investigation. Some of the boys were given special attention, such as social counseling and medical and educational aid. The remainder were left to the regular community assistance programs. In 1956, 21 years later, a followup study investigated the relationship between the adult lives of the boys and their childhood. Included was a study of alcoholism within the group.

Because of the earlier intensive investigation and the more recent one, it became possible to subject several current theories of alcoholism to critical review based on the analyses of these data. Physiological theories of nutritional deficiency, glandular disorder, and heredity were subjected to tests. It was determined that metabolic disturbances are not significantly related to alcoholism, that glandular disorder does not lead to alcoholism, and evidence for a hereditary explanation is lacking. In much the same manner, several of the analytical theories were tested. Suicidal, oral, and homosexual tendencies were investigated. In these analyses it was suggested that boys with marked suicidal tendencies may be more likely to become addicted. On the other hand, boys who had oral tendencies or who were markedly feminine did not have a greater tendency to alcoholism.

Interestingly enough, it was also found that boys whose mothers strongly encouraged dependency were not more likely than other boys to become alcoholics. In much the same manner, it was suggested that boys with strong inferiority feelings were not more likely to become alcoholics. There are certain problems with this study, for example, the measures of physiological malfunction used 21 years ago were not so precise as those in contemporary use. However, in spite of shortcomings of this kind, the study is significant in that it is one of the few efforts to gather longitudinal data.

Little research has been done on the effectiveness of the various types of therapeutic effort. Not too much is known except that some kinds of therapy work for some kinds of people. However, basic questions, such as what types of individuals are most likely to benefit

from amongst the various therapeutic techniques, remain unanswered. Certainly there is need for evaluations of the various means of intervention.

The Federal Program

The National Institute of Mental Health, Public Health Service, through its own research and through its grants program, actively seeks solutions to the problems raised. Various kinds of support are provided for investigators working in many of the tunnels in our mountain. For example, support is given to the North American Association of Alcoholism Programs in a nomenclature study which was recently inaugurated. The purpose of this study is to derive an acceptable definition of alcoholism, probably with some conformity to the American Medical Association's standard nomenclature. In another area, a major epidemiological study has come into existence. It is anticipated that this study will provide many of the baseline data on non-pathological drinking patterns which are so urgently needed. A major effort currently in its formative stage is the establishment of a Cooperative Commission on Alcoholism under the executive direction of Dr. Nevitt Sanford of the Center for Advanced Study in the Behavioral Sciences in Stanford, Calif. The commission will evaluate the existing state of knowledge, examine various therapeutic techniques, and make recommendations.

In addition to these research activities, the institute is supporting training and providing consultative and technical assistance to the States and organizations which are attempting to strengthen or increase our understanding of alcoholism. Perhaps it should be noted too that many of the projects supported by the institute may appear at first sight not to have any direct bearing upon the problem of alcoholism. However, it is quite likely that indirectly many of these projects will contribute to our knowledge in this very, very complex field (15).

Other agencies of the Department of Health, Education, and Welfare are also concerned with alcoholism. For example, the Office of Vocational Rehabilitation engages in extensive rehabilitation programs, including those for

the mentally ill. The Office of Education, too, is concerned with mental health in the schools, and with problems relating to health education.

While it may seem that in this paper more questions have been raised than have been answered, it would be erroneous to assume that no progress has been made in our understanding of alcoholism. As a result of the research we now know some of the questions to ask, and we are therefore in a position to develop ways of answering them.

The mountain still stands in its tremendous bulk. However, it is not an isolated mountain, but rather one of a range of problems. In fact, mental illness can be considered as the entire mountain range. In this regard it is at least conceivable that based on adequate research in the mental health field, much of the mountain chain may be bypassed on the road to health. Scaling or tunneling individual peaks may not be the surest way to reach our objective. Again, the alcoholism problem is one mountain among the very many mental health problem mountains which provide tremendous barriers to mentally healthy living.

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